

Conclusions: As opposed to patients with CIACB, patients with an extreme p wave prolongation ($p > 150$ ms) and no biphasic pattern may have a delayed conduction through the Bachmann's bundle without a complete block.

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Study of the circadian variation of the QT dynamics in myocardial infarction

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Introduction: The relation between the QT interval and heart rate is linear. The QT interval/RR interval relationship is generally described as QT dynamics. the linear QT/RR slope is influenced by the autonomic nervous system. In healthy individuals, the slope exhibits circadian variations : it is steeper during the day than during the night.

Aim: The aim of this study is to evaluate the circadian variation of the QT interval and the QT/RR slope in patients experiencing myocardial infarction.

Methods: This prospective study included 90 patients having myocardial infarction. They underwent 21 days after the acute phase, 24 hours ambulatory ECG (Holter) recording. The following parameters were studied : the QT end interval (QT_e), the QT apex interval (QT_a) and the slopes of QT_e/RR and QT_a/RR during diurnal and nocturnal periods..

Results: There was no significant difference regarding the QT_e and the QT_a intervals during the day and night. The mean diurnal slope and nocturnal slopes of QT_e/RR were similar (0.147 ± 0.073 vs 0.131 ± 0.062 , $p = \text{NS}$). The mean diurnal slope and nocturnal slopes of QT_a/RR were also comparable (0.123 ± 0.067 vs 0.119 ± 0.065 , $p = \text{NS}$).

Conclusion: The lack of circadian variation of the QT interval and the linear QT/RR slope in myocardial infarction patients reflects an imbalance in the autonomic nervous system. These results suggest an increase in the nocturnal sympathetic tone and may be associated with a higher risk of arrhythmia in this population. Further studies are needed to evaluate the role of the QT/RR slope in risk stratification after myocardial infarction.

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Infection on cardiac devices. A monocentric prospective study

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Purpose: The infections after cardiac device implantation (CDI) are not well known in the real life because of the multiplicity of the circumstances. This is a monocentric prospective study.

Method: 304 consecutive pts had a CDI in 6 months (feb to aug 2009): male 69% age 70 ± 15 yo. The data of the pts were consecutively collected:

type of device (VVI PM 10%, DDD PM 42%, CRT P 7%, VVI ICD 13%, DDD ICD 10%, CRT D 17%) (Primo Implant 73%, Device Replacement 21%, Lead Replacement 8%, Burying 2.3%).

components of the NNIS score (N1. Nosocomial Infection Surveillance): -1 duration of the procedure (83 ± 40 mn) ; -2 ASA score (Am.Soc.Anesth)(asa1=4%, asa2=22%, asa3=43%, asa4=30%, asa5=0) ; -3 surgical site Infection (SSI) Class: Clean wound 73%, fever the days before 6%.

the prevention with antibiotic therapy was: - conventional: Cefuroxime 1.5 g 30 mn before and 0.75g each 2hr (93% ; 69% timing conformity); - Vancomycine 1gr 1hr before (3%); previous adjusted therapy (4%).

the follow-up was of 3 months.

Results: 7 SSI occurred at 43 ± 36 days (2.3%) for DDD PM=5, VVI ICD=1, CRT D=1. They were 2 endocarditis (for 2 implantations on the other

side after an extraction, with the same germ) sepsis = 1 (diabetes), loge infection = 4 (2 after burying). The 7 pts had an extraction of the device and the leads. The risk factors of SSI were anticoagulation (7/7 ; $p < 0.05$) ; contralateral implantation after previous sepsis (2/7, $p < 0.05$), burying on the same site (2/7 ; tendency), admission in Intensive Care Unit (3/7 ; tendency), antibiotic therapy too early (3/7 ; tendency).

Conclusion: SSI and sepsis after CDI depends of the clinical surroundings (Anticoagulation, Previous Sepsis, Burying, Intensive care unit. The complexity of the device (PM, ICD, CRT) has a low role.

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Is high sensitive C reactive protein related to clinical and echocardiographic risk of thrombo-embolism in patients with atrial fibrillation?

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Introduction: Atrial fibrillation is associated with a prothrombotic state with an increased risk of stroke. Recent studies suggested that there is an apparent link between thrombogenesis and inflammation.

Aim: we sought to study the relation between high sensitive C reactive protein (HS CRP) and clinical (CHAD score) and echocardiographic prothrombotic indexes in patients with atrial fibrillation.

Methods: we prospectively measured HS CRP in 100 patients with atrial fibrillation. The mean age was 56 ± 12 years. All patients underwent transthoracic echocardiography (TEE). The TEE risk factors for thromboembolism considered were: a peak left appendage velocity 0.2 m/s, the presence of a thrombus and a dense spontaneous echo contrast.

Results: HS CRP was correlated with the clinical CHAD score ($r = 0.54$, $p = 0.0001$). CRP value was significantly higher among patients with a CHAD score $2 (6.91 \pm 4.4 \text{ mg / dl vs } 4.35 \pm 3.8$, $p = 0.001$). Values of HS CRP were comparable between patients having 1 TEE risk factor and those with no TEE risk factor (5.13 ± 3.7 vs 6.5 ± 0.5 $p = \text{NS}$)

Discussion and conclusion: the significant correlation between the CHAD score and HS CRP could be explained by the existence in this score of factors associated with elevated CRP. Although no apparent relation was found between the HS CRP and echocardiographic risk factors of thromboembolism, these results do not exclude the inflammatory hypotheses in the pathogenesis of thromboembolism. A study of the correlation between CRP and thromboembolic complications during follow up of patients is mandatory.

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Renal failure after CRT implantation: more than a contrast nephropathy

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Background and purpose: We studied short term effect of CRT implantation on renal function and focused especially on the role of contrast agent dose.

Method: Acute renal failure (ARF) was defined as a decrease of more than 25% of the clearance of creatinine (Cl Cr) calculated with MDRD method within four days following implantation.

Results: We considered 141 patients referred for CRT implantation: male: 79%, mean age: 68 ± 12 , diabetes: 71%, HTA: 38%, Cl Cr: $48 \text{ mL } \pm 19$, median contrast dose: 48 mL (IR: 30/80), median BNP variation: -30% (IR: -58/-8), Haemoglobin (Hb) variation: $-6.3\% \pm 11.2$. ARF occurred in 19 patients (13.5%), 3 of them died and one was lost. Renal function of 14 out of the 15 remaining completely recovered. In-hospital stay longer than 10 days was more frequent in ARF group (OR=5.18, $p < 0.03$).

Decrease of Hb was the only independent factor of ARF with a negative correlation (OR=0.94, $p < 0.01$).

Treatment with ACEI (OR=6.13, $p=0.09$) and HTA (OR=2.62, $p=0.06$) tend to be positively associated with ARF while a contrast dose above 80 mL tends to be negatively associated (OR=0.24, $p=0.08$).

High dose of contrast administration was associated with low CI Cr (spearman correlation coefficient=-0.19, $p<0.03$) and decrease of Hb (-1.21, $p<0.02$).

Conclusion: Acute renal failure is a frequent and severe complication after CRT implantation. Careful pre and post implantation management is required. Mechanism seems more complex than a contrast induced nephropathy.

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Long term follow-up of patient implanted with ICD before 2000

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Background: ICD is an effective treatment to prevent SCD but very long term follow-up is poorly known

Methods: We retrospectively studied the 67 patients implanted with an ICD at the University Hospital of Toulouse between 1989 and 1999.

Results: Characteristics of the population are (number of patients): males: 56, ischemic heart disease (IHD): 42, mean EF 42%, secondary prevention: 62, abdominal implantation: 30, dual chamber devices: 57. Data were complete for 58 patients (mean follow-up: 100 months \pm 103), nine patients were lost to follow up (mean 52 \pm 40 months). Survival rate (of the 58 patients) is respectively 93%, 71% and 48% at 1, 5 and 10 years. Cause of death was cardiac for 10 patients (7 terminal cardiac failures, 2 sudden cardiac deaths and 1 endocarditis), extra cardiac for 7 patients and unknown for 13. Independent factors of global mortality are: age ($p=0.038$), IHD ($p=0.035$), NYHA > 2 ($p=0.0058$), EF $< 35\%$ ($p=0.0005$). 37 patients experienced appropriate ICD therapy, 13 of them suffered an electrical storm. 18 patients presented with inappropriate therapy (oversensing: 44%, supra ventricular tachycardia: 39%). Non rhythmic complications occurred in 27 patients (infections: 4, ICD lead related complications: 7, delay of healing or haematoma: 12).

Conclusion: Patients implanted with ICD before 2000 remain at high risk of mortality and morbidity.

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Prevention of unnecessary ventricular pacing with the IRS Plus algorithm

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Purpose: Chronic right ventricular pacing (VP) has been linked to deleterious effect on cardiac function. This registry was designed to quantify the efficacy of Intrinsic Rhythm Support algorithm (IRS Plus), aimed to minimize VP.

Methods: Patients (pts) were prospectively included 1 to 3 months after PM implantation and had IRS Plus set on. Device statistics were collected after 6 months of FU.

Results: Preliminary results have been obtained in 158 pts (mean age 78 ± 9 years, 55% male). Median VP% was 3.9 in pts with SND vs 25.3 in pts presenting an impaired AV conduction ($p=0.024$). The median VP% was 4.2 in pts with normal baseline PR interval vs 39.5 in pts with prolonged (>200 ms) PR interval ($p<0.0001$). AF burden was significantly lower in pts with VP% less or equal to 10% (0.4% vs 4.2%, $p=0.026$).

Conclusion: IRS Plus reduces unnecessary VP, especially in pts with pure SND. Avoiding VP appears to decrease AF burden.

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Recall alerts in implantable cardioverter-defibrillator recipients : implications for patients and physicians

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Backgrounds: Implantable cardioverter-defibrillator (ICD) malfunctions sometimes need recall. Despite the increasing number of device implantation, ICD recalls and advisories' impacts have been little studied. The aim of this study was to determine the rate of ICD generator advisory in our center and to examine its clinical and financial implication.

Methods: We analyzed weekly FDA Enforcement Reports issued between January 2000 and December 2008 to identify all advisories involving ICD generators and leads. We performed a retrospective analysis of all implanted patients affected by an advisory in our Cardiology department.

Results: During the 8 years of the study period, 13 advisories were issued for generators and 1 for leads, leading to a total number of 278/1051 (26.4%) device with recall alerts, divided into 196 generator failures and 82 lead failures. Premature generator replacement was performed in 11 patients whereas 9 patients underwent lead replacement. There was no major complications attributable to advisory device replacement, and minor complications occurred only in 1 patient (lead extraction failure). Recalls accounted for 593 extra out-patient visits with a mean number of 2.20 ± 2.19 per patient. The total estimated cost of the device advisories in our population was 334 528 ϵ .

Conclusions: ICD recalls and safety alerts frequently occur in ICD recipients and tend to increase in number and rate. Although potentially serious, they are not associated with substantial complications. Financial implications are important.

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Is it a risk of stroke in Wolff Parkinson White syndrome?

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Atrial fibrillation (AF) is a major cause of stroke. AF incidence is increased in Wolff-Parkinson-White syndrome (WPW), represents about 10 % of spontaneous arrhythmias and has several mechanisms as the degeneration of atrio-ventricular reentrant tachycardia (AVRT) into AF, the AF facilitation by the atrial insertion of accessory pathway (AP) or another origin. The purpose of study was to assess the incidence of stroke in patients (pts) who had a pre-excitation syndrome.

Population: 707 pts aged from 5 to 85 years (mean 34.5 ± 17) were studied for a WPW: 93 pts had unexplained syncope; 247 pts were asymptomatic; 367 pts had spontaneous tachycardias; among these pts 52 had documented AF. Electrophysiological study (EPS) consisted of atrial pacing and programmed atrial stimulation in control state and if necessary after infusion of isoproterenol. Clinical and electrophysiological data were collected.

Results: Stroke was noted in 5 pts (0.7 %), 2 women, 3 men aged from 53 to 75 years. They had a normal carotid and transcranial Doppler ultrasonography. One pt had ischemic heart disease and the remaining pts had no heart disease. Their age was significantly older than remaining population (62 ± 9 years vs 34 ± 17) ($p<0.0002$). Only one pt had spontaneous AF; 51 other pts with spontaneous AF had no stroke. One of 247 was asymptomatic; one pt of 93 had syncope and 2 pts of 315 had spontaneous AVRT. At EPS, one asymptomatic pt had AP with long refractory period and no inducible tachycardia. Two pts with spontaneous tachycardias had only inducible AVRT and the pt with spontaneous AF had inducible antidromic tachycardia and AF. The pt with syncope had only inducible AF. These electrophysiological data did not differ from the remaining population. Anticoagulants were maintained after AP ablation, although the disappearance of arrhythmias.